SEQUENCE LISTING

<110> EISENBACH-SCHWARTZ, Michal
      COHEN, Irun R.
      BESERMAN, Pierre
      MOSONEGO, Alon
      MOALEM, Gila

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<151> 1999-05-19

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9

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10

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11

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13

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15

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16

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cccctctctc catcagagga cacctgtact ggagagcaac acaggatggt ctctgccatg    15480

aactggaggc caggaatctc ctcactgaaa attacagtat ggtaactttg caaatggtgg    15540

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tactacttga tggtcagaca caaacaaaca agctaggtgc taattaataa agatacgagt    15960

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gaatcacgag gtcaggagtt caagaccagc ctggccaaca tggtgaaacc ccatctctac    16080

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aggctgaggc aggagaatcg cttgaaccca ggaggcagag gttgcagtga gctgagatcg    16200

cgccactgca ctctagccgg agtgacagag taagactctg tctcaaaaat aaataaataa    16260
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17

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ataaataaat aaataaataa ataaataaaa aataataata caagttttca taagcacact  16320

tctaacccct tgtcttttat gtatttcctt ccttatccac gcacctgtct ccctctactc  16380

cagcctcatt accccagagg tcagtcctca ggaaaactaa acacaaagaa agagctcagt  16440

cagaaaggcc atttatttat gtttcaagat gctcactgcc tcctttgttt tgtctccttt  16500

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gcccctccag tgatccataa ggccctcttt ctccccaaag gagaggtcac agatagggca  16740

aaggtagctc ttctgcttcc agtgggtctg ctggtgtctg accagcctgg aaaatgagct  16800

gaaagacttg ctgcaatgga agcagtagtt gggcggctct gtgaggtggc ccttctggtg  16860

tctggagaga taggatttct tgctaaaagt caaagaacaa tgggggcaac agaagacatt  16920

gagtcttgag ggcttcactg gatgagagtt ggatctggca tcctgacaga gggttccagt  16980

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ctgggtgcct ggaatcctca agtacactc ctggtttcca tccactggct cctggttttg  17220

gtgtatcttc tggtggcgtt tgagctcaga ctggtcccgg aagctcttcc cacacacaga  17280

gcatgaatgg ggccggtaac ccagatggac gcggcggtga cgacttagtc cagaagcatc  17340

acagtaggtc ttgtcacaga gcgtgcaaca gaagggcctc tccccaagat gcatgcgtct  17400

gtgatagctg agggacttgg ggctccgaaa caacttccca cactgactgc agctgttagt  17460

cagcttggga ttgtgaacaa actggtggct atagaggtag gagcgcctgc tgaaacattt  17520

ggcacaggtg tagcaaaa                                                17538


<210>  10
<211>  327
<212>  DNA
<213>  Rattus norvegicus

<400>  10
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cagatctttg gcgactacaa gaccaccatc tgcggcaagg gcctgagcgc aacggtaaca     180

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18

<210> 11
<211> 2013
<212> DNA
<213> Rattus norvegicus

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ttgctggaca agatgatatt ccttaccacc ctgcctctgt tttggataat gatttcagct   180

tctcgagggg ggcactgggg tgcctggatg ccctcgtcca tctcagcctt cgagggcacg   240

tgtgtctcca tcccctgccg tttcgacttc ccggatgagc tcagaccggc tgtggtacat   300

ggcgtctggt atttcaacag tccctacccc aagaactacc cgccagtggt cttcaagtcc   360

cgcacacaag tggtccacga gagcttccag ggccgtagcc gcctgttggg agacctgggc   420

ctacgaaact gcaccctgct tctcagcacg ctgagccctg agctgggagg aaatactat   480

ttccgaggtg acctgggcgg ctacaaccag tacaccttct cggagcacag cgtcctggac   540

atcatcaaca ccccaacat cgtggtgccc ccagaagtgg tggcaggaac ggaagtagag   600

gtcagctgca tggtgccgga caactgccca gagctgcgcc ctgagctgag ctggctgggc   660

cacgagggggc taggggagcc cactgttctg ggtcggctgc gggaggatga aggcacctgg   720

gtgcaggtgt cactgctaca cttcgtgcct actagagagg ccaacggcca ccgtctgggc   780

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aagtacccc cggtgattgt ggagatgaat tcctctgtgg aggccattga gggctcccac   900

gtcagcctgc tctgtgggggc tgacagcaac ccgccaccgc tgctgacttg gatgcgggat   960

gggatggtgt tgagggaggc agttgctgag agcctgtacc tggatctgga ggaggtgacc   1020

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acggtggagc tgagcgtcat gtatgcacct tggaagccca cagtgaatgg gacggtggtg   1140

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ctcaccatct tcaaggagaa gcagatcctg gccacggtca tctatgagag tcagctgcag   1260

ctggaactcc ctgcagtgac gcccgaggac gatggggagt actggtgtgt agctgagaac   1320

cagtatggcc agagagccac cgccttcaac ctgtctgtgg agtttgctcc cataatcctt   1380

19

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ctggaatcgc actgtgcagc ggccagagac accgtgcagt gcctgtgtgt ggtaaaatcc    1440

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gagagggagt ttgtgtactc agagcgcagc ggcctcctgc tcaccagcat cctcacgctc    1560

cggggtcagg cccaagcccc accccgcgtc atttgtacct ccaggaacct ctacggcacc    1620

cagagcctcg agctgccttt ccagggagca caccgactga tgtgggccaa aatcggccct    1680

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agaagaaaaa agaacgtcac agagagcccc agcttctcag cgggagacaa ccctcatgtc    1800

ctgtacagcc ccgaattccg aatctctgga gcacctgata agtatgagag tgagaagcgc    1860

ctggggtccg agaggaggct gctgggcctt aggggggaac cccagaact  ggacctcagt    1920

tattcccact cagacctggg gaaacgaccc accaaggaca gctacaccct gacagaggag    1980

ctggctgagt acgcagaaat ccgagtcaag tga                                 2013


<210>   12
<211>   171
<212>   PRT
<213>   Homo sapiens

<400>   12

Met Ala Ser Gln Lys Arg Pro Ser Gln Arg His Gly Ser Lys Tyr Leu
1               5                   10                  15


Ala Thr Ala Ser Thr Met Asp His Ala Arg His Gly Phe Leu Pro Arg
            20                  25                  30


His Arg Asp Thr Gly Ile Leu Asp Ser Ile Gly Arg Phe Phe Gly Gly
        35                  40                  45


Asp Arg Gly Ala Pro Lys Arg Gly Ser Gly Lys Asp Ser His His Pro
    50                  55                  60


Ala Arg Thr Ala His Tyr Gly Ser Leu Pro Gln Lys Ser His Gly Arg
65                  70                  75                  80


Thr Gln Asp Glu Asn Pro Val Val His Phe Phe Lys Asn Ile Val Thr
                85                  90                  95


Pro Arg Thr Pro Pro Pro Ser Gln Gly Lys Gly Arg Gly Leu Ser Leu
            100                 105                 110
```

20

Ser Arg Phe Ser Trp Gly Ala Glu Gly Gln Arg Pro Gly Phe Gly Tyr
     115   120   125

Gly Gly Arg Ala Ser Asp Tyr Lys Ser Ala His Lys Gly Phe Lys Gly
     130   135   140

Val Asp Ala Gln Gly Thr Leu Ser Lys Ile Phe Lys Leu Gly Gly Arg
145   150   155   160

Asp Ser Arg Ser Gly Ser Pro Met Ala Arg Arg
            165   170

<210> 13
<211> 274
<212> PRT
<213> Homo sapiens

<400> 13

Met Gly Leu Leu Glu Cys Cys Ala Arg Cys Leu Val Gly Ala Pro Phe
1   5   10   15

Ala Ser Leu Val Ala Thr Gly Leu Cys Phe Phe Gly Val Ala Leu Phe
          20   25   30

Cys Gly Cys Gly His Glu Ala Leu Thr Gly Thr Glu Lys Leu Ile Glu
       35   40   45

Thr Tyr Phe Ser Lys Asn Tyr Gln Asp Tyr Glu Tyr Leu Ile Asn Val
     50   55   60

Ile His Ala Phe Gln Tyr Val Ile Tyr Gly Thr Ala Ser Phe Phe Phe
65   70   75   80

Leu Tyr Gly Ala Leu Leu Leu Ala Glu Gly Phe Tyr Thr Thr Gly Ala
          85   90   95

Val Arg Gln Ile Phe Gly Asp Tyr Lys Thr Thr Ile Cys Gly Lys Gly
          100   105   110

Leu Ser Ala Thr Val Thr Gly Gly Gln Lys Gly Arg Gly Ser Arg Gly
          115   120   125

Gln His Gln Ala His Ser Leu Glu Arg Val Cys His Cys Leu Gly Lys
          130   135   140

```
Trp Leu Gly His Pro Asp Lys Ile Thr Tyr Ala Leu Thr Val Val Trp
145             150             155             160

Leu Leu Val Phe Ala Cys Ser Ala Val Pro Val Tyr Ile Tyr Phe Asn
            165             170             175

Thr Trp Thr Thr Cys Gln Ser Ile Ala Phe Pro Ser Lys Thr Ser Ala
            180             185             190

Ser Ile Gly Ser Leu Cys Ala Asp Ala Arg Met Tyr Gly Val Leu Pro
            195             200             205

Trp Asn Ala Phe Pro Gly Lys Val Cys Gly Ser Asn Leu Leu Ser Ile
    210             215             220

Cys Lys Thr Ala Glu Phe Gln Met Thr Phe His Leu Phe Ile Ala Ala
225             230             235             240

Phe Val Gly Ala Ala Ala Thr Leu Val Ser Leu Leu Thr Phe Met Ile
            245             250             255

Ala Ala Thr Tyr Asn Phe Ala Val Leu Lys Leu Met Gly Arg Gly Thr
            260             265             270

Lys Phe


<210>  14
<211>  247
<212>  PRT
<213>  Homo sapiens

<400>  14

Met Ala Ser Leu Ser Arg Pro Ser Leu Pro Ser Cys Leu Cys Ser Phe
1               5               10              15

Leu Leu Leu Leu Leu Leu Gln Val Ser Ser Ser Tyr Ala Gly Gln Phe
            20              25              30

Arg Val Ile Gly Pro Arg His Pro Ile Arg Ala Leu Val Gly Asp Glu
            35              40              45

Val Glu Leu Pro Cys Arg Ile Ser Pro Gly Lys Asn Ala Thr Gly Met
    50              55              60
```

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Glu Val Gly Trp Tyr Arg Pro Pro Phe Ser Arg Val Val His Leu Tyr
65              70              75              80

Arg Asn Gly Lys Asp Gln Asp Gly Asp Gln Ala Pro Glu Tyr Arg Gly
                85              90              95

Arg Thr Glu Leu Leu Lys Asp Ala Ile Gly Glu Gly Lys Val Thr Leu
            100             105             110

Arg Ile Arg Asn Val Arg Phe Ser Asp Glu Gly Gly Phe Thr Cys Phe
            115             120             125

Phe Arg Asp His Ser Tyr Gln Glu Glu Ala Ala Met Glu Leu Lys Val
    130             135             140

Glu Asp Pro Phe Tyr Trp Val Ser Pro Gly Val Leu Val Leu Leu Ala
145             150             155             160

Val Leu Pro Val Leu Leu Leu Gln Ile Thr Leu Gly Leu Val Phe Leu
            165             170             175

Cys Leu Gln Tyr Arg Leu Arg Gly Lys Leu Arg Ala Glu Ile Glu Asn
            180             185             190

Leu His Arg Thr Phe Asp Pro His Phe Leu Arg Val Pro Cys Trp Lys
            195             200             205

Ile Thr Leu Phe Val Ile Val Pro Val Leu Gly Pro Leu Val Ala Leu
    210             215             220

Ile Ile Cys Tyr Asn Trp Leu His Arg Arg Leu Ala Gly Gln Phe Leu
225             230             235             240

Glu Glu Leu Arg Asn Pro Phe
                245


<210>   15
<211>   18
<212>   PRT
<213>   Rattus norvegicus

<400>   15

Ala Pro Lys Arg Gly Ser Gly Lys Asp Ser His Thr Arg Thr Thr His
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23

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                  1                    5                           10                          15


         Tyr Gly



         <210>  16
         <211>  23
         <212>  PRT
         <213>  Homo sapiens

         <400>  16

         Val Leu Gly Gly Gly Cys Ala Leu Leu Arg Cys Pro Ala Leu Asp Ser
         1                   5                   10                  15


         Leu Thr Pro Ala Asn Glu Asp
                     20



         <210>  17
         <211>  4684
         <212>  DNA
         <213>  Rattus norvegicus

         <220>
         <221>  CDS
         <222>  (253)..(3744)
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         atcgcgaagg caggagaagc agtctcattg ttccgggagc cgtcgcctct gcaggttctt     120

         cggctcggct cggcacgact cggcctgcct ggccctgcc agtcttgccc aaccccaca       180

         accgcccgcg actctgagga gaagcggccc tgcggcggct gtagctgcag catcgtcggc     240

         gacccgccag cc atg gaa gac ata gac cag tcg tcg ctg gtc tcc tcg tcc     291
                       Met Glu Asp Ile Asp Gln Ser Ser Leu Val Ser Ser Ser
                        1               5                   10

         acg gac agc ccg ccc cgg cct ccg ccc gcc ttc aag tac cag ttc gtg     339
         Thr Asp Ser Pro Pro Arg Pro Pro Pro Ala Phe Lys Tyr Gln Phe Val
             15                  20                  25

         acg gag ccc gag gac gag gag gac gag gag gag gag gag gac gag gag     387
         Thr Glu Pro Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Asp Glu Glu
         30                  35                  40                  45

         gag gac gac gag gac cta gag gaa ctg gag gtg ctg gag agg aag ccc     435
         Glu Asp Asp Glu Asp Leu Glu Glu Leu Glu Val Leu Glu Arg Lys Pro
                         50                  55                  60
```

24

```
gca gcc ggg ctg tcc gca gct gcg gtg ccg ccc gcc gcc gcc gcg ccg      483
Ala Ala Gly Leu Ser Ala Ala Ala Val Pro Pro Ala Ala Ala Ala Pro
            65                      70                  75

ctg ctg gac ttc agc agc gac tcg gtg ccc ccc gcg ccc cgc ggg ccg      531
Leu Leu Asp Phe Ser Ser Asp Ser Val Pro Pro Ala Pro Arg Gly Pro
            80                      85                  90

ctg ccg gcc gcg ccc cct gcc gct cct gag agg cag cca tcc tgg gaa      579
Leu Pro Ala Ala Pro Pro Ala Ala Pro Glu Arg Gln Pro Ser Trp Glu
        95                  100                 105

cgc agc ccc gcg gcg ccc gcg cca tcc ctg ccg ccc gct gcc gca gtc      627
Arg Ser Pro Ala Ala Pro Ala Pro Ser Leu Pro Pro Ala Ala Ala Val
110                 115                 120                 125

ctg ccc tcc aag ctc cca gag gac gac gag cct ccg gcg agg ccc ccg      675
Leu Pro Ser Lys Leu Pro Glu Asp Asp Glu Pro Pro Ala Arg Pro Pro
                130                 135                 140

cct ccg ccg cca gcc ggc gcg agc ccc ctg gcg gag ccc gcc gcg ccc      723
Pro Pro Pro Pro Ala Gly Ala Ser Pro Leu Ala Glu Pro Ala Ala Pro
            145                 150                 155

cct tcc acg ccg gcc gcg ccc aag cgc agg ggc tcc ggc tca gtg gat      771
Pro Ser Thr Pro Ala Ala Pro Lys Arg Arg Gly Ser Gly Ser Val Asp
            160                 165                 170

gag acc ctt ttt gct ctt cct gct gca tct gag cct gtg ata ccc tcc      819
Glu Thr Leu Phe Ala Leu Pro Ala Ala Ser Glu Pro Val Ile Pro Ser
            175                 180                 185

tct gca gaa aaa att atg gat ttg atg gag cag cca ggt aac act gtt      867
Ser Ala Glu Lys Ile Met Asp Leu Met Glu Gln Pro Gly Asn Thr Val
190                 195                 200                 205

tcg tct ggt caa gag gat ttc cca tct gtc ctg ctt gaa act gct gcc      915
Ser Ser Gly Gln Glu Asp Phe Pro Ser Val Leu Leu Glu Thr Ala Ala
                210                 215                 220

tct ctt cct tct cta tct cct ctc tca act gtt tct ttt aaa gaa cat      963
Ser Leu Pro Ser Leu Ser Pro Leu Ser Thr Val Ser Phe Lys Glu His
                225                 230                 235

gga tac ctt ggt aac tta tca gca gtg tca tcc tca gaa gga aca att     1011
Gly Tyr Leu Gly Asn Leu Ser Ala Val Ser Ser Ser Glu Gly Thr Ile
            240                 245                 250

gaa gaa act tta aat gaa gct tct aaa gag ttg cca gag agg gca aca     1059
Glu Glu Thr Leu Asn Glu Ala Ser Lys Glu Leu Pro Glu Arg Ala Thr
            255                 260                 265

aat cca ttt gta aat aga gat tta gca gaa ttt tca gaa tta gaa tat     1107
Asn Pro Phe Val Asn Arg Asp Leu Ala Glu Phe Ser Glu Leu Glu Tyr
270                 275                 280                 285

tca gaa atg gga tca tct ttt aaa ggc tcc cca aaa gga gag tca gcc     1155
Ser Glu Met Gly Ser Ser Phe Lys Gly Ser Pro Lys Gly Glu Ser Ala
```

25

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                    290                      295                      300
ata tta gta gaa aac act aag gaa gaa gta att gtg agg agt aaa gac    1203
Ile Leu Val Glu Asn Thr Lys Glu Glu Val Ile Val Arg Ser Lys Asp
            305                      310                  315

aaa gag gat tta gtt tgt agt gca gcc ctt cac agt cca caa gaa tca    1251
Lys Glu Asp Leu Val Cys Ser Ala Ala Leu His Ser Pro Gln Glu Ser
            320                  325                  330

cct gtg ggt aaa gaa gac aga gtt gtg tct cca gaa aag aca atg gac    1299
Pro Val Gly Lys Glu Asp Arg Val Val Ser Pro Glu Lys Thr Met Asp
            335                  340                  345

att ttt aat gaa atg cag atg tca gta gta gca cct gtg agg gaa gag    1347
Ile Phe Asn Glu Met Gln Met Ser Val Val Ala Pro Val Arg Glu Glu
350                  355                  360                  365

tat gca gac ttt aag cca ttt gaa caa gca tgg gaa gtg aaa gat act    1395
Tyr Ala Asp Phe Lys Pro Phe Glu Gln Ala Trp Glu Val Lys Asp Thr
                    370                  375                  380

tat gag gga agt agg gat gtg ctg gct gct aga gct aat gtg gaa agt    1443
Tyr Glu Gly Ser Arg Asp Val Leu Ala Ala Arg Ala Asn Val Glu Ser
                385                  390                  395

aaa gtg gac aga aaa tgc ttg gaa gat agc ctg gag caa aaa agt ctt    1491
Lys Val Asp Arg Lys Cys Leu Glu Asp Ser Leu Glu Gln Lys Ser Leu
            400                  405                  410

ggg aag gat agt gaa ggc aga aat gag gat gct tct ttc ccc agt acc    1539
Gly Lys Asp Ser Glu Gly Arg Asn Glu Asp Ala Ser Phe Pro Ser Thr
            415                  420                  425

cca gaa cct gtg aag gac agc tcc aga gca tat att acc tgt gct tcc    1587
Pro Glu Pro Val Lys Asp Ser Ser Arg Ala Tyr Ile Thr Cys Ala Ser
430                  435                  440                  445

ttt acc tca gca acc gaa agc acc aca gca aac act ttc cct ttg tta    1635
Phe Thr Ser Ala Thr Glu Ser Thr Thr Ala Asn Thr Phe Pro Leu Leu
                450                  455                  460

gaa gat cat act tca gaa aat aaa aca gat gaa aaa aaa ata gaa gaa    1683
Glu Asp His Thr Ser Glu Asn Lys Thr Asp Glu Lys Lys Ile Glu Glu
                465                  470                  475

agg aag gcc caa att ata aca gag aag act agc ccc aaa acg tca aat    1731
Arg Lys Ala Gln Ile Ile Thr Glu Lys Thr Ser Pro Lys Thr Ser Asn
            480                  485                  490

cct ttc ctt gta gca gta cag gat tct gag gca gat tat gtt aca aca    1779
Pro Phe Leu Val Ala Val Gln Asp Ser Glu Ala Asp Tyr Val Thr Thr
            495                  500                  505

gat acc tta tca aag gtg act gag gca gca gtg tca aac atg cct gaa    1827
Asp Thr Leu Ser Lys Val Thr Glu Ala Ala Val Ser Asn Met Pro Glu
510                  515                  520                  525
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ggt ctg acg cca gat tta gtt cag gaa gca tgt gaa agt gaa ctg aat     1875
Gly Leu Thr Pro Asp Leu Val Gln Glu Ala Cys Glu Ser Glu Leu Asn
            530                 535                 540

gaa gcc aca ggt aca aag att gct tat gaa aca aaa gtg gac ttg gtc     1923
Glu Ala Thr Gly Thr Lys Ile Ala Tyr Glu Thr Lys Val Asp Leu Val
            545                 550                 555

caa aca tca gaa gct ata caa gaa tca ctt tac ccc aca gca cag ctt     1971
Gln Thr Ser Glu Ala Ile Gln Glu Ser Leu Tyr Pro Thr Ala Gln Leu
            560                 565                 570

tgc cca tca ttt gag gaa gct gaa gca act ccg tca cca gtt ttg cct     2019
Cys Pro Ser Phe Glu Glu Ala Glu Ala Thr Pro Ser Pro Val Leu Pro
            575                 580                 585

gat att gtt atg gaa gca cca tta aat tct ctc ctt cca agc gct ggt     2067
Asp Ile Val Met Glu Ala Pro Leu Asn Ser Leu Leu Pro Ser Ala Gly
590                 595                 600                 605

gct tct gta gtg cag ccc agt gta tcc cca ctg gaa gca cct cct cca     2115
Ala Ser Val Val Gln Pro Ser Val Ser Pro Leu Glu Ala Pro Pro Pro
                610                 615                 620

gtt agt tat gac agt ata aag ctt gag cct gaa aac ccc cca cca tat     2163
Val Ser Tyr Asp Ser Ile Lys Leu Glu Pro Glu Asn Pro Pro Pro Tyr
                625                 630                 635

gaa gaa gcc atg aat gta gca cta aaa gct ttg gga aca aag gaa gga     2211
Glu Glu Ala Met Asn Val Ala Leu Lys Ala Leu Gly Thr Lys Glu Gly
            640                 645                 650

ata aaa gag cct gaa agt ttt aat gca gct gtt cag gaa aca gaa gct     2259
Ile Lys Glu Pro Glu Ser Phe Asn Ala Ala Val Gln Glu Thr Glu Ala
            655                 660                 665

cct tat ata tcc att gcg tgt gat tta att aaa gaa aca aag ctc tcc     2307
Pro Tyr Ile Ser Ile Ala Cys Asp Leu Ile Lys Glu Thr Lys Leu Ser
670                 675                 680                 685

act gag cca agt cca gat ttc tct aat tat tca gaa ata gca aaa ttc     2355
Thr Glu Pro Ser Pro Asp Phe Ser Asn Tyr Ser Glu Ile Ala Lys Phe
                690                 695                 700

gag aag tcg gtg ccc gaa cac gct gag cta gtg gag gat tcc tca cct     2403
Glu Lys Ser Val Pro Glu His Ala Glu Leu Val Glu Asp Ser Ser Pro
                705                 710                 715

gaa tct gaa cca gtt gac tta ttt agt gat gat tcg att cct gaa gtc     2451
Glu Ser Glu Pro Val Asp Leu Phe Ser Asp Asp Ser Ile Pro Glu Val
            720                 725                 730

cca caa aca caa gag gag gct gtg atg ctc atg aag gag agt ctc act     2499
Pro Gln Thr Gln Glu Glu Ala Val Met Leu Met Lys Glu Ser Leu Thr
            735                 740                 745

gaa gtg tct gag aca gta gcc cag cac aaa gag gag aga ctt agt gcc     2547
Glu Val Ser Glu Thr Val Ala Gln His Lys Glu Glu Arg Leu Ser Ala
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27

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tca cct cag gag cta gga aag cca tat tta gag tct ttt cag ccc aat    2595
Ser Pro Gln Glu Leu Gly Lys Pro Tyr Leu Glu Ser Phe Gln Pro Asn
            770                 775                 780

tta cat agt aca aaa gat gct gca tct aat gac att cca aca ttg acc    2643
Leu His Ser Thr Lys Asp Ala Ala Ser Asn Asp Ile Pro Thr Leu Thr
            785                 790                 795

aaa aag gag aaa att tct ttg caa atg gaa gag ttt aat act gca att    2691
Lys Lys Glu Lys Ile Ser Leu Gln Met Glu Glu Phe Asn Thr Ala Ile
            800                 805                 810

tat tca aat gat gac tta ctt tct tct aag gaa gac aaa ata aaa gaa    2739
Tyr Ser Asn Asp Asp Leu Leu Ser Ser Lys Glu Asp Lys Ile Lys Glu
        815                 820                 825

agt gaa aca ttt tca gat tca tct ccg att gag ata ata gat gaa ttt    2787
Ser Glu Thr Phe Ser Asp Ser Ser Pro Ile Glu Ile Ile Asp Glu Phe
830                 835                 840                 845

ccc acg ttt gtc agt gct aaa gat gat tct cct aaa tta gcc aag gag    2835
Pro Thr Phe Val Ser Ala Lys Asp Asp Ser Pro Lys Leu Ala Lys Glu
                850                 855                 860

tac act gat cta gaa gta tcc gac aaa agt gaa att gct aat atc caa    2883
Tyr Thr Asp Leu Glu Val Ser Asp Lys Ser Glu Ile Ala Asn Ile Gln
            865                 870                 875

agc ggg gca gat tca ttg cct tgc tta gaa ttg ccc tgt gac ctt tct    2931
Ser Gly Ala Asp Ser Leu Pro Cys Leu Glu Leu Pro Cys Asp Leu Ser
            880                 885                 890

ttc aag aat ata tat cct aaa gat gaa gta cat gtt tca gat gaa ttc    2979
Phe Lys Asn Ile Tyr Pro Lys Asp Glu Val His Val Ser Asp Glu Phe
        895                 900                 905

tcc gaa aat agg tcc agt gta tct aag gca tcc ata tcg cct tca aat    3027
Ser Glu Asn Arg Ser Ser Val Ser Lys Ala Ser Ile Ser Pro Ser Asn
910                 915                 920                 925

gtc tct gct ttg gaa cct cag aca gaa atg ggc agc ata gtt aaa tcc    3075
Val Ser Ala Leu Glu Pro Gln Thr Glu Met Gly Ser Ile Val Lys Ser
                930                 935                 940

aaa tca ctt acg aaa gaa gca gag aaa aaa ctt cct tct gac aca gag    3123
Lys Ser Leu Thr Lys Glu Ala Glu Lys Lys Leu Pro Ser Asp Thr Glu
            945                 950                 955

aaa gag gac aga tcc ctg tca gct gta ttg tca gca gag ctg agt aaa    3171
Lys Glu Asp Arg Ser Leu Ser Ala Val Leu Ser Ala Glu Leu Ser Lys
            960                 965                 970

act tca gtt gtt gac ctc ctc tac tgg aga gac att aag aag act gga    3219
Thr Ser Val Val Asp Leu Leu Tyr Trp Arg Asp Ile Lys Lys Thr Gly
        975                 980                 985
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gtg gtg ttt ggt gcc  agc tta ttc ctg ctg ctg  tct ctg aca gtg ttc    3267
Val Val Phe Gly Ala  Ser Leu Phe Leu Leu Leu  Ser Leu Thr Val Phe
990                  995            1000            1005

agc att gtc agt gta  acg gcc tac att gcc  ttg gcc ctg ctc tcg       3312
Ser Ile Val Ser Val  Thr Ala Tyr Ile Ala  Leu Ala Leu Leu Ser
             1010            1015            1020

gtg act atc agc ttt  agg ata tat aag ggc  gtg atc cag gct atc       3357
Val Thr Ile Ser Phe  Arg Ile Tyr Lys Gly  Val Ile Gln Ala Ile
             1025            1030            1035

cag aaa tca gat gaa  ggc cac cca ttc agg  gca tat tta gaa tct       3402
Gln Lys Ser Asp Glu  Gly His Pro Phe Arg  Ala Tyr Leu Glu Ser
             1040            1045            1050

gaa gtt gct ata tca  gag gaa ttg gtt cag  aaa tac agt aat tct       3447
Glu Val Ala Ile Ser  Glu Glu Leu Val Gln  Lys Tyr Ser Asn Ser
             1055            1060            1065

gct ctt ggt cat gtg  aac agc aca ata aaa  gaa ctg agg cgg ctt       3492
Ala Leu Gly His Val  Asn Ser Thr Ile Lys  Glu Leu Arg Arg Leu
             1070            1075            1080

ttc tta gtt gat gat  tta gtt gat tcc ctg  aag ttt gca gtg ttg       3537
Phe Leu Val Asp Asp  Leu Val Asp Ser Leu  Lys Phe Ala Val Leu
             1085            1090            1095

atg tgg gtg ttt act  tat gtt ggt gcc ttg  ttc aat ggt ctg aca       3582
Met Trp Val Phe Thr  Tyr Val Gly Ala Leu  Phe Asn Gly Leu Thr
             1100            1105            1110

cta ctg att tta gct  ctg atc tca ctc ttc  agt att cct gtt att       3627
Leu Leu Ile Leu Ala  Leu Ile Ser Leu Phe  Ser Ile Pro Val Ile
             1115            1120            1125

tat gaa cgg cat cag  gtg cag ata gat cat  tat cta gga ctt gca       3672
Tyr Glu Arg His Gln  Val Gln Ile Asp His  Tyr Leu Gly Leu Ala
             1130            1135            1140

aac aag agt gtt aag  gat gcc atg gcc aaa  atc caa gca aaa atc       3717
Asn Lys Ser Val Lys  Asp Ala Met Ala Lys  Ile Gln Ala Lys Ile
             1145            1150            1155

cct gga ttg aag cgc  aaa gca gat tga aaaagcccca aacagaagtt          3764
Pro Gly Leu Lys Arg  Lys Ala Asp
             1160

catctttaaa ggggacactc acttgattac gggggtggga gggtcagggg tgagcccttg   3824

gtggccgtgc ggtttcagct ctttattttt agcagtgcac tgtttgagga aaaattacct   3884

gtcttgactt cctgtgttta tcatcttaag tattgtaagc tgctgtgtat ggatctcatt   3944

gtagtcacac ttgtcttccc caatgaggcg cctggtgaat aaaggactcg gggaaagctg   4004

tgcattgtat ctgctgcagg gtagtctagc tgtatgcaga gagttgtaaa gaaggcaaat   4064
```

29

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ctggggggcag ggaaaaccct tttcacagtg tactgtgttt ggtcagtgta aaactgatgc    4124

agattttct gaaatgaaat gtttagatga gagcatacta ctaaagcaga gtggaaaact    4184

ctgtctttat ggtgtgttct aggtgtattg tgaatttact gttatattgc caatataagt    4244

aaatatagac ctaatctata tatagtgttt cacaaagctt agatctttaa ccttgcagct    4304

gccccacagt gcttgacctc tgagtcattg gttatgcagt gtagtccaag cacataaact    4364

aggaagagaa atgtatttgt aggagtgcta cctaccacct gttttcaaga aaatatagaa    4424

ctccaacaaa aatatagaat gtcatttcaa agacttactg tatgtatagt taattttgtc    4484

acagactctg aaattctatg gactgaattt catgcttcca aatgtttgca gttatcaaac    4544

attgttatgc aagaaatcat aaaatgaaga cttataccat tgtggtttaa gccgtactga    4604

attatctgtg gaatgcattg tgaactgtaa aagcaaagta tcaataaagc ttatagatct    4664

taaaaaaaaa aaaaaaaaaa                                                 4684


<210>   18
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<212>   PRT
<213>   Rattus norvegicus

<400>   18

Met Glu Asp Ile Asp Gln Ser Ser Leu Val Ser Ser Ser Thr Asp Ser
1               5                   10                  15


Pro Pro Arg Pro Pro Pro Ala Phe Lys Tyr Gln Phe Val Thr Glu Pro
            20                  25                  30


Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Asp Glu Glu Glu Asp Asp
        35                  40                  45


Glu Asp Leu Glu Glu Leu Glu Val Leu Glu Arg Lys Pro Ala Ala Gly
    50                  55                  60


Leu Ser Ala Ala Ala Val Pro Pro Ala Ala Ala Ala Pro Leu Leu Asp
65                  70                  75                  80


Phe Ser Ser Asp Ser Val Pro Pro Ala Pro Arg Gly Pro Leu Pro Ala
                85                  90                  95


Ala Pro Pro Ala Ala Pro Glu Arg Gln Pro Ser Trp Glu Arg Ser Pro
            100                 105                 110
```

30

Ala Ala Pro Ala Pro Ser Leu Pro Pro Ala Ala Ala Val Leu Pro Ser
        115   120   125

Lys Leu Pro Glu Asp Asp Glu Pro Pro Ala Arg Pro Pro Pro Pro Pro
        130   135   140

Pro Ala Gly Ala Ser Pro Leu Ala Glu Pro Ala Ala Pro Pro Ser Thr
145   150   155   160

Pro Ala Ala Pro Lys Arg Arg Gly Ser Gly Ser Val Asp Glu Thr Leu
                165   170   175

Phe Ala Leu Pro Ala Ala Ser Glu Pro Val Ile Pro Ser Ser Ala Glu
                180   185   190

Lys Ile Met Asp Leu Met Glu Gln Pro Gly Asn Thr Val Ser Ser Gly
        195   200   205

Gln Glu Asp Phe Pro Ser Val Leu Leu Glu Thr Ala Ala Ser Leu Pro
        210   215   220

Ser Leu Ser Pro Leu Ser Thr Val Ser Phe Lys Glu His Gly Tyr Leu
225   230   235   240

Gly Asn Leu Ser Ala Val Ser Ser Ser Glu Gly Thr Ile Glu Glu Thr
                245   250   255

Leu Asn Glu Ala Ser Lys Glu Leu Pro Glu Arg Ala Thr Asn Pro Phe
                260   265   270

Val Asn Arg Asp Leu Ala Glu Phe Ser Glu Leu Glu Tyr Ser Glu Met
                275   280   285

Gly Ser Ser Phe Lys Gly Ser Pro Lys Gly Glu Ser Ala Ile Leu Val
        290   295   300

Glu Asn Thr Lys Glu Glu Val Ile Val Arg Ser Lys Asp Lys Glu Asp
305   310   315   320

Leu Val Cys Ser Ala Ala Leu His Ser Pro Gln Glu Ser Pro Val Gly
                325   330   335

Lys Glu Asp Arg Val Val Ser Pro Glu Lys Thr Met Asp Ile Phe Asn
                340   345   350

31

Glu Met Gln Met Ser Val Val Ala Pro Val Arg Glu Glu Tyr Ala Asp
    355   360   365

Phe Lys Pro Phe Glu Gln Ala Trp Glu Val Lys Asp Thr Tyr Glu Gly
    370   375   380

Ser Arg Asp Val Leu Ala Ala Arg Ala Asn Val Glu Ser Lys Val Asp
385   390   395   400

Arg Lys Cys Leu Glu Asp Ser Leu Glu Gln Lys Ser Leu Gly Lys Asp
            405   410   415

Ser Glu Gly Arg Asn Glu Asp Ala Ser Phe Pro Ser Thr Pro Glu Pro
            420   425   430

Val Lys Asp Ser Ser Arg Ala Tyr Ile Thr Cys Ala Ser Phe Thr Ser
        435   440   445

Ala Thr Glu Ser Thr Thr Ala Asn Thr Phe Pro Leu Leu Glu Asp His
    450   455   460

Thr Ser Glu Asn Lys Thr Asp Glu Lys Lys Ile Glu Glu Arg Lys Ala
465   470   475   480

Gln Ile Ile Thr Glu Lys Thr Ser Pro Lys Thr Ser Asn Pro Phe Leu
            485   490   495

Val Ala Val Gln Asp Ser Glu Ala Asp Tyr Val Thr Thr Asp Thr Leu
            500   505   510

Ser Lys Val Thr Glu Ala Ala Val Ser Asn Met Pro Glu Gly Leu Thr
            515   520   525

Pro Asp Leu Val Gln Glu Ala Cys Glu Ser Glu Leu Asn Glu Ala Thr
    530   535   540

Gly Thr Lys Ile Ala Tyr Glu Thr Lys Val Asp Leu Val Gln Thr Ser
545   550   555   560

Glu Ala Ile Gln Glu Ser Leu Tyr Pro Thr Ala Gln Leu Cys Pro Ser
            565   570   575

32

Phe Glu Glu Ala Glu Ala Thr Pro Ser Pro Val Leu Pro Asp Ile Val
      580   585   590

Met Glu Ala Pro Leu Asn Ser Leu Leu Pro Ser Ala Gly Ala Ser Val
      595   600   605

Val Gln Pro Ser Val Ser Pro Leu Glu Ala Pro Pro Pro Val Ser Tyr
      610   615   620

Asp Ser Ile Lys Leu Glu Pro Glu Asn Pro Pro Pro Tyr Glu Glu Ala
625   630   635   640

Met Asn Val Ala Leu Lys Ala Leu Gly Thr Lys Glu Gly Ile Lys Glu
            645   650   655

Pro Glu Ser Phe Asn Ala Ala Val Gln Glu Thr Glu Ala Pro Tyr Ile
            660   665   670

Ser Ile Ala Cys Asp Leu Ile Lys Glu Thr Lys Leu Ser Thr Glu Pro
            675   680   685

Ser Pro Asp Phe Ser Asn Tyr Ser Glu Ile Ala Lys Phe Glu Lys Ser
      690   695   700

Val Pro Glu His Ala Glu Leu Val Glu Asp Ser Ser Pro Glu Ser Glu
705   710   715   720

Pro Val Asp Leu Phe Ser Asp Asp Ser Ile Pro Glu Val Pro Gln Thr
            725   730   735

Gln Glu Glu Ala Val Met Leu Met Lys Glu Ser Leu Thr Glu Val Ser
            740   745   750

Glu Thr Val Ala Gln His Lys Glu Glu Arg Leu Ser Ala Ser Pro Gln
            755   760   765

Glu Leu Gly Lys Pro Tyr Leu Glu Ser Phe Gln Pro Asn Leu His Ser
            770   775   780

Thr Lys Asp Ala Ala Ser Asn Asp Ile Pro Thr Leu Thr Lys Lys Glu
785   790   795   800

Lys Ile Ser Leu Gln Met Glu Glu Phe Asn Thr Ala Ile Tyr Ser Asn
            805   810   815

```
Asp Asp Leu Leu Ser Ser Lys Glu Asp Lys Ile Lys Glu Ser Glu Thr
        820                 825             830

Phe Ser Asp Ser Ser Pro Ile Glu Ile Ile Asp Glu Phe Pro Thr Phe
        835                 840             845

Val Ser Ala Lys Asp Asp Ser Pro Lys Leu Ala Lys Glu Tyr Thr Asp
        850                 855             860

Leu Glu Val Ser Asp Lys Ser Glu Ile Ala Asn Ile Gln Ser Gly Ala
865                 870             875                 880

Asp Ser Leu Pro Cys Leu Glu Leu Pro Cys Asp Leu Ser Phe Lys Asn
                885             890             895

Ile Tyr Pro Lys Asp Glu Val His Val Ser Asp Glu Phe Ser Glu Asn
            900             905             910

Arg Ser Ser Val Ser Lys Ala Ser Ile Ser Pro Ser Asn Val Ser Ala
        915             920             925

Leu Glu Pro Gln Thr Glu Met Gly Ser Ile Val Lys Ser Lys Ser Leu
        930             935             940

Thr Lys Glu Ala Glu Lys Lys Leu Pro Ser Asp Thr Glu Lys Glu Asp
945             950             955                 960

Arg Ser Leu Ser Ala Val Leu Ser Ala Glu Leu Ser Lys Thr Ser Val
            965                 970                 975

Val Asp Leu Leu Tyr Trp Arg Asp Ile Lys Lys Thr Gly Val Val Phe
        980             985             990

Gly Ala Ser Leu Phe Leu Leu Leu  Ser Leu Thr Val Phe  Ser Ile Val
        995             1000            1005

Ser Val  Thr Ala Tyr Ile Ala  Leu Ala Leu Leu Ser  Val Thr Ile
    1010            1015            1020

Ser Phe  Arg Ile Tyr Lys Gly  Val Ile Gln Ala Ile  Gln Lys Ser
    1025            1030            1035
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34

Asp Glu Gly His Pro Phe Arg Ala Tyr Leu Glu Ser Glu Val Ala
    1040   1045   1050

Ile Ser Glu Glu Leu Val Gln Lys Tyr Ser Asn Ser Ala Leu Gly
    1055   1060   1065

His Val Asn Ser Thr Ile Lys Glu Leu Arg Arg Leu Phe Leu Val
    1070   1075   1080

Asp Asp Leu Val Asp Ser Leu Lys Phe Ala Val Leu Met Trp Val
    1085   1090   1095

Phe Thr Tyr Val Gly Ala Leu Phe Asn Gly Leu Thr Leu Leu Ile
    1100   1105   1110

Leu Ala Leu Ile Ser Leu Phe Ser Ile Pro Val Ile Tyr Glu Arg
    1115   1120   1125

His Gln Val Gln Ile Asp His Tyr Leu Gly Leu Ala Asn Lys Ser
    1130   1135   1140

Val Lys Asp Ala Met Ala Lys Ile Gln Ala Lys Ile Pro Gly Leu
    1145   1150   1155

Lys Arg Lys Ala Asp
    1160

<210> 19
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<212> PRT
<213> Rattus norvegicus

<400> 19

Ser Tyr Asp Ser Ile Lys Leu Glu Pro Glu Asn Pro Pro Pro Tyr Glu
1   5   10   15

Glu Ala

<210> 20
<211> 360
<212> PRT
<213> Rattus norvegicus

<400> 20

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Met Glu Asp Ile Asp Gln Ser Ser Leu Val Ser Ser Ser Thr Asp Ser
1               5                   10                  15

Pro Pro Arg Pro Pro Pro Ala Phe Lys Tyr Gln Phe Val Thr Glu Pro
            20                  25                  30

Glu Asp Glu Glu Asp Glu Glu Glu Glu Glu Asp Glu Glu Glu Asp Asp
        35                  40                  45

Glu Asp Leu Glu Glu Leu Glu Val Leu Glu Arg Lys Pro Ala Ala Gly
        50                  55                  60

Leu Ser Ala Ala Ala Val Pro Pro Ala Ala Ala Ala Pro Leu Leu Asp
65                  70                  75                  80

Phe Ser Ser Asp Ser Val Pro Pro Ala Pro Arg Gly Pro Leu Pro Ala
                85                  90                  95

Ala Pro Pro Ala Ala Pro Glu Arg Gln Pro Ser Trp Glu Arg Ser Pro
            100                 105                 110

Ala Ala Pro Ala Pro Ser Leu Pro Pro Ala Ala Ala Val Leu Pro Ser
            115                 120                 125

Lys Leu Pro Glu Asp Asp Glu Pro Pro Ala Arg Pro Pro Pro Pro Pro
    130                 135                 140

Pro Ala Gly Ala Ser Pro Leu Ala Glu Pro Ala Ala Pro Pro Ser Thr
145                 150                 155                 160

Pro Ala Ala Pro Lys Arg Arg Gly Ser Gly Ser Val Val Val Asp Leu
            165                 170                 175

Leu Tyr Trp Arg Asp Ile Lys Lys Thr Gly Val Val Phe Gly Ala Ser
            180                 185                 190

Leu Phe Leu Leu Leu Ser Leu Thr Val Phe Ser Ile Val Ser Val Thr
    195                 200                 205

Ala Tyr Ile Ala Leu Ala Leu Leu Ser Val Thr Ile Ser Phe Arg Ile
    210                 215                 220

Tyr Lys Gly Val Ile Gln Ala Ile Gln Lys Ser Asp Glu Gly His Pro
225                 230                 235                 240
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36

Phe Arg Ala Tyr Leu Glu Ser Glu Val Ala Ile Ser Glu Glu Leu Val
                245   250   255

Gln Lys Tyr Ser Asn Ser Ala Leu Gly His Val Asn Ser Thr Ile Lys
                260   265   270

Glu Leu Arg Arg Leu Phe Leu Val Asp Asp Leu Val Asp Ser Leu Lys
                275   280   285

Phe Ala Val Leu Met Trp Val Phe Thr Tyr Val Gly Ala Leu Phe Asn
                290   295   300

Gly Leu Thr Leu Leu Ile Leu Ala Leu Ile Ser Leu Phe Ser Ile Pro
305   310   315   320

Val Ile Tyr Glu Arg His Gln Val Gln Ile Asp His Tyr Leu Gly Leu
                325   330   335

Ala Asn Lys Ser Val Lys Asp Ala Met Ala Lys Ile Gln Ala Lys Ile
                340   345   350

Pro Gly Leu Lys Arg Lys Ala Asp
                355   360

<210>   21
<211>   199
<212>   PRT
<213>   Rattus norvegicus

<400>   21

Met Asp Gly Gln Lys Lys His Trp Lys Asp Lys Val Val Asp Leu Leu
1   5   10   15

Tyr Trp Arg Asp Ile Lys Lys Thr Gly Val Val Phe Gly Ala Ser Leu
                20   25   30

Phe Leu Leu Leu Ser Leu Thr Val Phe Ser Ile Val Ser Val Thr Ala
                35   40   45

Tyr Ile Ala Leu Ala Leu Leu Ser Val Thr Ile Ser Phe Arg Ile Tyr
                50   55   60

Lys Gly Val Ile Gln Ala Ile Gln Lys Ser Asp Glu Gly His Pro Phe

Arg Ala Tyr Leu Glu Ser Glu Val Ala Ile Ser Glu Glu Leu Val Gln
                85   90   95

Lys Tyr Ser Asn Ser Ala Leu Gly His Val Asn Ser Thr Ile Lys Glu
                100   105   110

Leu Arg Arg Leu Phe Leu Val Asp Asp Leu Val Asp Ser Leu Lys Phe
                115   120   125

Ala Val Leu Met Trp Val Phe Thr Tyr Val Gly Ala Leu Phe Asn Gly
        130   135   140

Leu Thr Leu Leu Ile Leu Ala Leu Ile Ser Leu Phe Ser Ile Pro Val
145   150   155   160

Ile Tyr Glu Arg His Gln Val Gln Ile Asp His Tyr Leu Gly Leu Ala
                165   170   175

Asn Lys Ser Val Lys Asp Ala Met Ala Lys Ile Gln Ala Lys Ile Pro
                180   185   190

Gly Leu Lys Arg Lys Ala Asp
        195

<210>   22
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<212>   DNA
<213>   Homo sapiens

<220>
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<222>   (1)..(3579)
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atg gaa gac ctg gac cag tct cct ctg gtc tcg tcc tcg gac agc cca   48
Met Glu Asp Leu Asp Gln Ser Pro Leu Val Ser Ser Ser Asp Ser Pro
1   5   10   15

ccc cgg ccg cag ccc gcg ttc aag tac cag ttc gtg agg gag ccc gag   96
Pro Arg Pro Gln Pro Ala Phe Lys Tyr Gln Phe Val Arg Glu Pro Glu
                20   25   30

gac gag gag gaa gaa gag gag gag gaa gag gag gac gag gac gaa gac   144
Asp Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Asp Glu Asp Glu Asp
        35   40   45

38

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ctg gag gag ctg gag gtg ctg gag agg aag ccc gcc gcc ggg ctg tcc        192
Leu Glu Glu Leu Glu Val Leu Glu Arg Lys Pro Ala Ala Gly Leu Ser
    50              55              60

gcg gcc cca gtg ccc acc gcc cct gcc gcc ggc gcg ccc ctg atg gac        240
Ala Ala Pro Val Pro Thr Ala Pro Ala Ala Gly Ala Pro Leu Met Asp
65              70              75              80

ttc gga aat gac ttc gtg ccg ccg gcg ccc cgg gga ccc ctg ccg gcc        288
Phe Gly Asn Asp Phe Val Pro Pro Ala Pro Arg Gly Pro Leu Pro Ala
            85              90              95

gct ccc ccc gtc gcc ccg gag cgg cag ccg tct tgg gac ccg agc ccg        336
Ala Pro Pro Val Ala Pro Glu Arg Gln Pro Ser Trp Asp Pro Ser Pro
        100             105             110

gtg tcg tcg acc gtg ccc gcg cca tcc ccg ctg tct gct gcc gca gtc        384
Val Ser Ser Thr Val Pro Ala Pro Ser Pro Leu Ser Ala Ala Ala Val
        115             120             125

tcg ccc tcc aag ctc cct gag gac gac gag cct ccg gcc cgg cct ccc        432
Ser Pro Ser Lys Leu Pro Glu Asp Asp Glu Pro Pro Ala Arg Pro Pro
    130             135             140

cct cct ccc ccg gcc agc gtg agc ccc cag gca gag ccc gtg tgg acc        480
Pro Pro Pro Pro Ala Ser Val Ser Pro Gln Ala Glu Pro Val Trp Thr
145             150             155             160

ccg cca gcc ccg gct ccc gcc gcg ccc ccc tcc acc ccg gcc gcg ccc        528
Pro Pro Ala Pro Ala Pro Ala Ala Pro Pro Ser Thr Pro Ala Ala Pro
            165             170             175

aag cgc agg ggc tcc tcg ggc tca gtg gat gag acc ctt ttt gct ctt        576
Lys Arg Arg Gly Ser Ser Gly Ser Val Asp Glu Thr Leu Phe Ala Leu
        180             185             190

cct gct gca tct gag cct gtg ata cgc tcc tct gca gaa aat atg gac        624
Pro Ala Ala Ser Glu Pro Val Ile Arg Ser Ser Ala Glu Asn Met Asp
        195             200             205

ttg aag gag cag cca ggt aac act att tcg gct ggt caa gag gat ttc        672
Leu Lys Glu Gln Pro Gly Asn Thr Ile Ser Ala Gly Gln Glu Asp Phe
    210             215             220

cca tct gtc ctg ctt gaa act gct gct tct ctt cct tct ctg tct cct        720
Pro Ser Val Leu Leu Glu Thr Ala Ala Ser Leu Pro Ser Leu Ser Pro
225             230             235             240

ctc tca gcc gct tct ttc aaa gaa cat gaa tac ctt ggt aat ttg tca        768
Leu Ser Ala Ala Ser Phe Lys Glu His Glu Tyr Leu Gly Asn Leu Ser
            245             250             255

aca gta tta ccc act gaa gga aca ctt caa gaa aat gtc agt gaa gct        816
Thr Val Leu Pro Thr Glu Gly Thr Leu Gln Glu Asn Val Ser Glu Ala
            260             265             270

tct aaa gag gtc tca gag aag gca aaa act cta ctc ata gat aga gat        864
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39

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              Ser Lys Glu Val Ser Glu Lys Ala Lys Thr Leu Leu Ile Asp Arg Asp
                      275                 280                 285

              tta aca gag ttt tca gaa tta gaa tac tca gaa atg gga tca tcg ttc      912
              Leu Thr Glu Phe Ser Glu Leu Glu Tyr Ser Glu Met Gly Ser Ser Phe
                      290                 295                 300

              agt gtc tct cca aaa gca gaa tct gcc gta ata gta gca aat cct agg      960
              Ser Val Ser Pro Lys Ala Glu Ser Ala Val Ile Val Ala Asn Pro Arg
              305                 310                 315                 320

              gaa gaa ata atc gtg aaa aat aaa gat gaa gaa gag aag tta gtt agt     1008
              Glu Glu Ile Ile Val Lys Asn Lys Asp Glu Glu Glu Lys Leu Val Ser
                                  325                 330                 335

              aat aac atc ctt cat aat caa caa gag tta cct aca gct ctt act aaa     1056
              Asn Asn Ile Leu His Asn Gln Gln Glu Leu Pro Thr Ala Leu Thr Lys
                              340                 345                 350

              ttg gtt aaa gag gat gaa gtt gtg tct tca gaa aaa gca aaa gac agt     1104
              Leu Val Lys Glu Asp Glu Val Val Ser Ser Glu Lys Ala Lys Asp Ser
                          355                 360                 365

              ttt aat gaa aag aga gtt gca gtg gaa gct cct atg agg gag gaa tat     1152
              Phe Asn Glu Lys Arg Val Ala Val Glu Ala Pro Met Arg Glu Glu Tyr
                      370                 375                 380

              gca gac ttc aaa cca ttt gag cga gta tgg gaa gtg aaa gat agt aag     1200
              Ala Asp Phe Lys Pro Phe Glu Arg Val Trp Glu Val Lys Asp Ser Lys
              385                 390                 395                 400

              gaa gat agt gat atg ttg gct gct gga ggt aaa atc gag agc aac ttg     1248
              Glu Asp Ser Asp Met Leu Ala Ala Gly Gly Lys Ile Glu Ser Asn Leu
                              405                 410                 415

              gaa agt aaa gtg gat aaa aaa tgt ttt gca gat agc ctt gag caa act     1296
              Glu Ser Lys Val Asp Lys Lys Cys Phe Ala Asp Ser Leu Glu Gln Thr
                          420                 425                 430

              aat cac gaa aaa gat agt gag agt agt aat gat gat act tct ttc ccc     1344
              Asn His Glu Lys Asp Ser Glu Ser Ser Asn Asp Asp Thr Ser Phe Pro
                          435                 440                 445

              agt acg cca gaa ggt ata aag gat cgt cca gga gca tat atc aca tgt     1392
              Ser Thr Pro Glu Gly Ile Lys Asp Arg Pro Gly Ala Tyr Ile Thr Cys
                      450                 455                 460

              gct ccc ttt aac cca gca gca act gag agc att gca aca aac att ttt     1440
              Ala Pro Phe Asn Pro Ala Ala Thr Glu Ser Ile Ala Thr Asn Ile Phe
              465                 470                 475                 480

              cct ttg tta gga gat cct act tca gaa aat aag acc gat gaa aaa aaa     1488
              Pro Leu Leu Gly Asp Pro Thr Ser Glu Asn Lys Thr Asp Glu Lys Lys
                              485                 490                 495

              ata gaa gaa aag aag gcc caa ata gta aca gag aag aat act agc acc     1536
              Ile Glu Glu Lys Lys Ala Gln Ile Val Thr Glu Lys Asn Thr Ser Thr
                      500                 505                 510
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40

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aaa aca tca aac cct ttt ctt gta gca gca cag gat tct gag aca gat    1584
Lys Thr Ser Asn Pro Phe Leu Val Ala Ala Gln Asp Ser Glu Thr Asp
        515             520             525

tat gtc aca aca gat aat tta aca aag gtg act gag gaa gtc gtg gca    1632
Tyr Val Thr Thr Asp Asn Leu Thr Lys Val Thr Glu Glu Val Val Ala
        530             535             540

aac atg cct gaa ggc ctg act cca gat tta gta cag gaa gca tgt gaa    1680
Asn Met Pro Glu Gly Leu Thr Pro Asp Leu Val Gln Glu Ala Cys Glu
545             550             555             560

agt gaa ttg aat gaa gtt act ggt aca aag att gct tat gaa aca aaa    1728
Ser Glu Leu Asn Glu Val Thr Gly Thr Lys Ile Ala Tyr Glu Thr Lys
                565             570             575

atg gac ttg gtt caa aca tca gaa gtt atg caa gag tca ctc tat cct    1776
Met Asp Leu Val Gln Thr Ser Glu Val Met Gln Glu Ser Leu Tyr Pro
                580             585             590

gca gca cag ctt tgc cca tca ttt gaa gag tca gaa gct act cct tca    1824
Ala Ala Gln Leu Cys Pro Ser Phe Glu Glu Ser Glu Ala Thr Pro Ser
        595             600             605

cca gtt ttg cct gac att gtt atg gaa gca cca ttg aat tct gca gtt    1872
Pro Val Leu Pro Asp Ile Val Met Glu Ala Pro Leu Asn Ser Ala Val
        610             615             620

cct agt gct ggt gct tcc gtg ata cag ccc agc tca tca cca tta gaa    1920
Pro Ser Ala Gly Ala Ser Val Ile Gln Pro Ser Ser Ser Pro Leu Glu
625             630             635             640

gct tct tca gtt aat tat gaa agc ata aaa cat gag cct gaa aac ccc    1968
Ala Ser Ser Val Asn Tyr Glu Ser Ile Lys His Glu Pro Glu Asn Pro
                645             650             655

cca cca tat gaa gag gcc atg agt gta tca cta aaa aaa gta tca gga    2016
Pro Pro Tyr Glu Glu Ala Met Ser Val Ser Leu Lys Lys Val Ser Gly
                660             665             670

ata aag gaa gaa att aaa gag cct gaa aat att aat gca gct ctt caa    2064
Ile Lys Glu Glu Ile Lys Glu Pro Glu Asn Ile Asn Ala Ala Leu Gln
                675             680             685

gaa aca gaa gct cct tat ata tct att gca tgt gat tta att aaa gaa    2112
Glu Thr Glu Ala Pro Tyr Ile Ser Ile Ala Cys Asp Leu Ile Lys Glu
        690             695             700

aca aag ctt tct gct gaa cca gct ccg gat ttc tct gat tat tca gaa    2160
Thr Lys Leu Ser Ala Glu Pro Ala Pro Asp Phe Ser Asp Tyr Ser Glu
705             710             715             720

atg gca aaa gtt gaa cag cca gtg cct gat cat tct gag cta gtt gaa    2208
Met Ala Lys Val Glu Gln Pro Val Pro Asp His Ser Glu Leu Val Glu
                725             730             735

gat tcc tca cct gat tct gaa cca gtt gac tta ttt agt gat gat tca    2256
```

41

```
Asp Ser Ser Pro Asp Ser Glu Pro Val Asp Leu Phe Ser Asp Asp Ser
        740             745             750

ata cct gac gtt cca caa aaa caa gat gaa act gtg atg ctt gtg aaa    2304
Ile Pro Asp Val Pro Gln Lys Gln Asp Glu Thr Val Met Leu Val Lys
        755             760             765

gaa agt ctc act gag act tca ttt gag tca atg ata gaa tat gaa aat    2352
Glu Ser Leu Thr Glu Thr Ser Phe Glu Ser Met Ile Glu Tyr Glu Asn
    770             775             780

aag gaa aaa ctc agt gct ttg cca cct gag gga gga aag cca tat ttg    2400
Lys Glu Lys Leu Ser Ala Leu Pro Pro Glu Gly Gly Lys Pro Tyr Leu
785             790             795             800

gaa tct ttt aag ctc agt tta gat aac aca aaa gat acc ctg tta cct    2448
Glu Ser Phe Lys Leu Ser Leu Asp Asn Thr Lys Asp Thr Leu Leu Pro
            805             810             815

gat gaa gtt tca aca ttg agc aaa aag gag aaa att cct ttg cag atg    2496
Asp Glu Val Ser Thr Leu Ser Lys Lys Glu Lys Ile Pro Leu Gln Met
            820             825             830

gag gag ctc agt act gca gtt tat tca aat gat gac tta ttt att tct    2544
Glu Glu Leu Ser Thr Ala Val Tyr Ser Asn Asp Asp Leu Phe Ile Ser
            835             840             845

aag gaa gca cag ata aga gaa act gaa acg ttt tca gat tca tct cca    2592
Lys Glu Ala Gln Ile Arg Glu Thr Glu Thr Phe Ser Asp Ser Ser Pro
    850             855             860

att gaa att ata gat gag ttc cct aca ttg atc agt tct aaa act gat    2640
Ile Glu Ile Ile Asp Glu Phe Pro Thr Leu Ile Ser Ser Lys Thr Asp
865             870             875             880

tca ttt tct aaa tta gcc agg gaa tat act gac cta gaa gta tcc cac    2688
Ser Phe Ser Lys Leu Ala Arg Glu Tyr Thr Asp Leu Glu Val Ser His
            885             890             895

aaa agt gaa att gct aat gcc ccg gat gga gct ggg tca ttg cct tgc    2736
Lys Ser Glu Ile Ala Asn Ala Pro Asp Gly Ala Gly Ser Leu Pro Cys
            900             905             910

aca gaa ttg ccc cat gac ctt tct ttg aag aac ata caa ccc aaa gtt    2784
Thr Glu Leu Pro His Asp Leu Ser Leu Lys Asn Ile Gln Pro Lys Val
            915             920             925

gaa gag aaa atc agt ttc tca gat gac ttt tct aaa aat ggg tct gct    2832
Glu Glu Lys Ile Ser Phe Ser Asp Asp Phe Ser Lys Asn Gly Ser Ala
    930             935             940

aca tca aag gtg ctc tta ttg cct cca gat gtt tct gct ttg gcc act    2880
Thr Ser Lys Val Leu Leu Leu Pro Pro Asp Val Ser Ala Leu Ala Thr
945             950             955             960

caa gca gag ata gag agc ata gtt aaa ccc aaa gtt ctt gtg aaa gaa    2928
Gln Ala Glu Ile Glu Ser Ile Val Lys Pro Lys Val Leu Val Lys Glu
            965             970             975
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42

```
gct gag aaa aaa ctt cct tcc gat aca gaa aaa gag gac aga tca cca       2976
Ala Glu Lys Lys Leu Pro Ser Asp Thr Glu Lys Glu Asp Arg Ser Pro
            980                 985                 990

tct gct ata ttt tca gca gag ctg  agt aaa act tca gtt  gtt gac ctc     3024
Ser Ala Ile Phe Ser Ala Glu Leu  Ser Lys Thr Ser Val  Val Asp Leu
            995                 1000                1005

ctg tac tgg aga gac att aag  aag act gga gtg gtg  ttt ggt gcc         3069
Leu Tyr Trp Arg Asp Ile Lys  Lys Thr Gly Val Val  Phe Gly Ala
    1010                1015                1020

agc cta ttc ctg ctg ctt tca  ttg aca gta ttc agc  att gtg agc         3114
Ser Leu Phe Leu Leu Leu Ser  Leu Thr Val Phe Ser  Ile Val Ser
    1025                1030                1035

gta aca gcc tac att gcc ttg  gcc ctg ctc tct gtg  acc atc agc         3159
Val Thr Ala Tyr Ile Ala Leu  Ala Leu Leu Ser Val  Thr Ile Ser
    1040                1045                1050

ttt agg ata tac aag ggt gtg  atc caa gct atc cag  aaa tca gat         3204
Phe Arg Ile Tyr Lys Gly Val  Ile Gln Ala Ile Gln  Lys Ser Asp
    1055                1060                1065

gaa ggc cac cca ttc agg gca  tat ctg gaa tct gaa  gtt gct ata         3249
Glu Gly His Pro Phe Arg Ala  Tyr Leu Glu Ser Glu  Val Ala Ile
    1070                1075                1080

tct gag gag ttg gtt cag aag  tac agt aat tct gct  ctt ggt cat         3294
Ser Glu Glu Leu Val Gln Lys  Tyr Ser Asn Ser Ala  Leu Gly His
    1085                1090                1095

gtg aac tgc acg ata aag gaa  ctc agg cgc ctc ttc  tta gtt gat         3339
Val Asn Cys Thr Ile Lys Glu  Leu Arg Arg Leu Phe  Leu Val Asp
    1100                1105                1110

gat tta gtt gat tct ctg aag  ttt gca gtg ttg atg  tgg gta ttt         3384
Asp Leu Val Asp Ser Leu Lys  Phe Ala Val Leu Met  Trp Val Phe
    1115                1120                1125

acc tat gtt ggt gcc ttg ttt  aat ggt ctg aca cta  ctg att ttg         3429
Thr Tyr Val Gly Ala Leu Phe  Asn Gly Leu Thr Leu  Leu Ile Leu
    1130                1135                1140

gct ctc att tca ctc ttc agt  gtt cct gtt att tat  gaa cgg cat         3474
Ala Leu Ile Ser Leu Phe Ser  Val Pro Val Ile Tyr  Glu Arg His
    1145                1150                1155

cag gcg cag ata gat cat tat  cta gga ctt gca aat  aag aat gtt         3519
Gln Ala Gln Ile Asp His Tyr  Leu Gly Leu Ala Asn  Lys Asn Val
    1160                1165                1170

aaa gat gct atg gct aaa atc  caa gca aaa atc cct  gga ttg aag         3564
Lys Asp Ala Met Ala Lys Ile  Gln Ala Lys Ile Pro  Gly Leu Lys
    1175                1180                1185

cgc aaa gct gaa tga                                                   3579
```

43

Arg Lys Ala Glu
    1190

<210> 23
<211> 1192
<212> PRT
<213> Homo sapiens

<400> 23

Met Glu Asp Leu Asp Gln Ser Pro Leu Val Ser Ser Ser Asp Ser Pro
1   5   10   15

Pro Arg Pro Gln Pro Ala Phe Lys Tyr Gln Phe Val Arg Glu Pro Glu
            20   25   30

Asp Glu Glu Glu Glu Glu Glu Glu Glu Glu Asp Glu Asp Glu Asp
        35   40   45

Leu Glu Glu Leu Glu Val Leu Glu Arg Lys Pro Ala Ala Gly Leu Ser
    50   55   60

Ala Ala Pro Val Pro Thr Ala Pro Ala Ala Gly Ala Pro Leu Met Asp
65   70   75   80

Phe Gly Asn Asp Phe Val Pro Pro Ala Pro Arg Gly Pro Leu Pro Ala
                85   90   95

Ala Pro Pro Val Ala Pro Glu Arg Gln Pro Ser Trp Asp Pro Ser Pro
            100   105   110

Val Ser Ser Thr Val Pro Ala Pro Ser Pro Leu Ser Ala Ala Ala Val
            115   120   125

Ser Pro Ser Lys Leu Pro Glu Asp Asp Glu Pro Pro Ala Arg Pro Pro
    130   135   140

Pro Pro Pro Pro Ala Ser Val Ser Pro Gln Ala Glu Pro Val Trp Thr
145   150   155   160

Pro Pro Ala Pro Ala Pro Ala Ala Pro Pro Ser Thr Pro Ala Ala Pro
                165   170   175

Lys Arg Arg Gly Ser Ser Gly Ser Val Asp Glu Thr Leu Phe Ala Leu
            180   185   190

                                44

Pro Ala Ala Ser Glu Pro Val Ile Arg Ser Ser Ala Glu Asn Met Asp
        195   200   205

Leu Lys Glu Gln Pro Gly Asn Thr Ile Ser Ala Gly Gln Glu Asp Phe
        210   215   220

Pro Ser Val Leu Leu Glu Thr Ala Ala Ser Leu Pro Ser Leu Ser Pro
225   230   235   240

Leu Ser Ala Ala Ser Phe Lys Glu His Glu Tyr Leu Gly Asn Leu Ser
                245   250   255

Thr Val Leu Pro Thr Glu Gly Thr Leu Gln Glu Asn Val Ser Glu Ala
                260   265   270

Ser Lys Glu Val Ser Glu Lys Ala Lys Thr Leu Leu Ile Asp Arg Asp
        275   280   285

Leu Thr Glu Phe Ser Glu Leu Glu Tyr Ser Glu Met Gly Ser Ser Phe
        290   295   300

Ser Val Ser Pro Lys Ala Glu Ser Ala Val Ile Val Ala Asn Pro Arg
305   310   315   320

Glu Glu Ile Ile Val Lys Asn Lys Asp Glu Glu Glu Lys Leu Val Ser
                325   330   335

Asn Asn Ile Leu His Asn Gln Gln Glu Leu Pro Thr Ala Leu Thr Lys
                340   345   350

Leu Val Lys Glu Asp Glu Val Val Ser Ser Glu Lys Ala Lys Asp Ser
                355   360   365

Phe Asn Glu Lys Arg Val Ala Val Glu Ala Pro Met Arg Glu Glu Tyr
        370   375   380

Ala Asp Phe Lys Pro Phe Glu Arg Val Trp Glu Val Lys Asp Ser Lys
385   390   395   400

Glu Asp Ser Asp Met Leu Ala Ala Gly Gly Lys Ile Glu Ser Asn Leu
                405   410   415

Glu Ser Lys Val Asp Lys Lys Cys Phe Ala Asp Ser Leu Glu Gln Thr

45

Asn His Glu Lys Asp Ser Glu Ser Ser Asn Asp Asp Thr Ser Phe Pro
     435   440   445

Ser Thr Pro Glu Gly Ile Lys Asp Arg Pro Gly Ala Tyr Ile Thr Cys
     450   455   460

Ala Pro Phe Asn Pro Ala Ala Thr Glu Ser Ile Ala Thr Asn Ile Phe
465   470   475   480

Pro Leu Leu Gly Asp Pro Thr Ser Glu Asn Lys Thr Asp Glu Lys Lys
          485   490   495

Ile Glu Glu Lys Lys Ala Gln Ile Val Thr Glu Lys Asn Thr Ser Thr
          500   505   510

Lys Thr Ser Asn Pro Phe Leu Val Ala Ala Gln Asp Ser Glu Thr Asp
          515   520   525

Tyr Val Thr Thr Asp Asn Leu Thr Lys Val Thr Glu Glu Val Val Ala
     530   535   540

Asn Met Pro Glu Gly Leu Thr Pro Asp Leu Val Gln Glu Ala Cys Glu
545   550   555   560

Ser Glu Leu Asn Glu Val Thr Gly Thr Lys Ile Ala Tyr Glu Thr Lys
          565   570   575

Met Asp Leu Val Gln Thr Ser Glu Val Met Gln Glu Ser Leu Tyr Pro
          580   585   590

Ala Ala Gln Leu Cys Pro Ser Phe Glu Glu Ser Glu Ala Thr Pro Ser
          595   600   605

Pro Val Leu Pro Asp Ile Val Met Glu Ala Pro Leu Asn Ser Ala Val
          610   615   620

Pro Ser Ala Gly Ala Ser Val Ile Gln Pro Ser Ser Ser Pro Leu Glu
625   630   635   640

Ala Ser Ser Val Asn Tyr Glu Ser Ile Lys His Glu Pro Glu Asn Pro
          645   650   655

```
Pro Pro Tyr Glu Glu Ala Met Ser Val Ser Leu Lys Lys Val Ser Gly
            660             665             670

Ile Lys Glu Glu Ile Lys Glu Pro Glu Asn Ile Asn Ala Ala Leu Gln
            675             680             685

Glu Thr Glu Ala Pro Tyr Ile Ser Ile Ala Cys Asp Leu Ile Lys Glu
            690             695             700

Thr Lys Leu Ser Ala Glu Pro Ala Pro Asp Phe Ser Asp Tyr Ser Glu
705             710             715             720

Met Ala Lys Val Glu Gln Pro Val Pro Asp His Ser Glu Leu Val Glu
            725             730             735

Asp Ser Ser Pro Asp Ser Glu Pro Val Asp Leu Phe Ser Asp Asp Ser
            740             745             750

Ile Pro Asp Val Pro Gln Lys Gln Asp Glu Thr Val Met Leu Val Lys
            755             760             765

Glu Ser Leu Thr Glu Thr Ser Phe Glu Ser Met Ile Glu Tyr Glu Asn
    770             775             780

Lys Glu Lys Leu Ser Ala Leu Pro Pro Glu Gly Gly Lys Pro Tyr Leu
785             790             795             800

Glu Ser Phe Lys Leu Ser Leu Asp Asn Thr Lys Asp Thr Leu Leu Pro
            805             810             815

Asp Glu Val Ser Thr Leu Ser Lys Lys Glu Lys Ile Pro Leu Gln Met
            820             825             830

Glu Glu Leu Ser Thr Ala Val Tyr Ser Asn Asp Asp Leu Phe Ile Ser
            835             840             845

Lys Glu Ala Gln Ile Arg Glu Thr Glu Thr Phe Ser Asp Ser Ser Pro
    850             855             860

Ile Glu Ile Ile Asp Glu Phe Pro Thr Leu Ile Ser Ser Lys Thr Asp
865             870             875             880

Ser Phe Ser Lys Leu Ala Arg Glu Tyr Thr Asp Leu Glu Val Ser His
```

47

885   890   895

Lys Ser Glu Ile Ala Asn Ala Pro Asp Gly Ala Gly Ser Leu Pro Cys
             900   905   910

Thr Glu Leu Pro His Asp Leu Ser Leu Lys Asn Ile Gln Pro Lys Val
             915   920   925

Glu Glu Lys Ile Ser Phe Ser Asp Asp Phe Ser Lys Asn Gly Ser Ala
         930   935   940

Thr Ser Lys Val Leu Leu Leu Pro Pro Asp Val Ser Ala Leu Ala Thr
945   950   955   960

Gln Ala Glu Ile Glu Ser Ile Val Lys Pro Lys Val Leu Val Lys Glu
                     965   970   975

Ala Glu Lys Lys Leu Pro Ser Asp Thr Glu Lys Glu Asp Arg Ser Pro
             980   985   990

Ser Ala Ile Phe Ser Ala Glu Leu Ser Lys Thr Ser Val Val Asp Leu
             995   1000   1005

Leu Tyr Trp Arg Asp Ile Lys Lys Thr Gly Val Val Phe Gly Ala
         1010   1015   1020

Ser Leu Phe Leu Leu Leu Ser Leu Thr Val Phe Ser Ile Val Ser
         1025   1030   1035

Val Thr Ala Tyr Ile Ala Leu Ala Leu Leu Ser Val Thr Ile Ser
         1040   1045   1050

Phe Arg Ile Tyr Lys Gly Val Ile Gln Ala Ile Gln Lys Ser Asp
         1055   1060   1065

Glu Gly His Pro Phe Arg Ala Tyr Leu Glu Ser Glu Val Ala Ile
         1070   1075   1080

Ser Glu Glu Leu Val Gln Lys Tyr Ser Asn Ser Ala Leu Gly His
         1085   1090   1095

Val Asn Cys Thr Ile Lys Glu Leu Arg Arg Leu Phe Leu Val Asp
         1100   1105   1110

                              48

Asp Leu Val Asp Ser Leu Lys Phe Ala Val Leu Met Trp Val Phe
    1115   1120   1125

Thr Tyr Val Gly Ala Leu Phe Asn Gly Leu Thr Leu Leu Ile Leu
    1130   1135   1140

Ala Leu Ile Ser Leu Phe Ser Val Pro Val Ile Tyr Glu Arg His
    1145   1150   1155

Gln Ala Gln Ile Asp His Tyr Leu Gly Leu Ala Asn Lys Asn Val
    1160   1165   1170

Lys Asp Ala Met Ala Lys Ile Gln Ala Lys Ile Pro Gly Leu Lys
    1175   1180   1185

Arg Lys Ala Glu
    1190

<210>   24
<211>   373
<212>   PRT
<213>   Homo sapiens

<400>   24

Met Glu Asp Leu Asp Gln Ser Pro Leu Val Ser Ser Ser Asp Ser Pro
1   5   10   15

Pro Arg Pro Gln Pro Ala Phe Lys Tyr Gln Phe Val Arg Glu Pro Glu
              20   25   30

Asp Glu Glu Glu Glu Glu Glu Glu Glu Glu Asp Glu Asp Glu Asp
        35   40   45

Leu Glu Glu Leu Glu Val Leu Glu Arg Lys Pro Ala Ala Gly Leu Ser
    50   55   60

Ala Ala Pro Val Pro Thr Ala Pro Ala Ala Gly Ala Pro Leu Met Asp
65   70   75   80

Phe Gly Asn Asp Phe Val Pro Pro Ala Pro Arg Gly Pro Leu Pro Ala
              85   90   95

Ala Pro Pro Val Ala Pro Glu Arg Gln Pro Ser Trp Asp Pro Ser Pro
              100   105   110

49

Val Ser Ser Thr Val Pro Ala Pro Ser Pro Leu Ser Ala Ala Ala Val
    115   120   125

Ser Pro Ser Lys Leu Pro Glu Asp Asp Glu Pro Pro Ala Arg Pro Pro
    130   135   140

Pro Pro Pro Pro Ala Ser Val Ser Pro Gln Ala Glu Pro Val Trp Thr
145   150   155   160

Pro Pro Ala Pro Ala Pro Ala Ala Pro Pro Ser Thr Pro Ala Ala Pro
          165   170   175

Lys Arg Arg Gly Ser Ser Gly Ser Val Val Val Asp Leu Leu Tyr Trp
          180   185   190

Arg Asp Ile Lys Lys Thr Gly Val Val Phe Gly Ala Ser Leu Phe Leu
          195   200   205

Leu Leu Ser Leu Thr Val Phe Ser Ile Val Ser Val Thr Ala Tyr Ile
    210   215   220

Ala Leu Ala Leu Leu Ser Val Thr Ile Ser Phe Arg Ile Tyr Lys Gly
225   230   235   240

Val Ile Gln Ala Ile Gln Lys Ser Asp Glu Gly His Pro Phe Arg Ala
          245   250   255

Tyr Leu Glu Ser Glu Val Ala Ile Ser Glu Glu Leu Val Gln Lys Tyr
          260   265   270

Ser Asn Ser Ala Leu Gly His Val Asn Cys Thr Ile Lys Glu Leu Arg
          275   280   285

Arg Leu Phe Leu Val Asp Asp Leu Val Asp Ser Leu Lys Phe Ala Val
          290   295   300

Leu Met Trp Val Phe Thr Tyr Val Gly Ala Leu Phe Asn Gly Leu Thr
305   310   315   320

Leu Leu Ile Leu Ala Leu Ile Ser Leu Phe Ser Val Pro Val Ile Tyr
          325   330   335

Glu Arg His Gln Ala Gln Ile Asp His Tyr Leu Gly Leu Ala Asn Lys
          340   345   350

Asn Val Lys Asp Ala Met Ala Lys Ile Gln Ala Lys Ile Pro Gly Leu
          355   360   365

Lys Arg Lys Ala Glu
      370

<210>   25
<211>   199
<212>   PRT
<213>   Homo sapiens

<400>   25

Met Asp Gly Gln Lys Lys Asn Trp Lys Asp Lys Val Val Asp Leu Leu
1   5   10   15

Tyr Trp Arg Asp Ile Lys Lys Thr Gly Val Val Phe Gly Ala Ser Leu
          20   25   30

Phe Leu Leu Leu Ser Leu Thr Val Phe Ser Ile Val Ser Val Thr Ala
          35   40   45

Tyr Ile Ala Leu Ala Leu Leu Ser Val Thr Ile Ser Phe Arg Ile Tyr
      50   55   .   60

Lys Gly Val Ile Gln Ala Ile Gln Lys Ser Asp Glu Gly His Pro Phe
65   70   75   80

Arg Ala Tyr Leu Glu Ser Glu Val Ala Ile Ser Glu Glu Leu Val Gln
              85   90   95

Lys Tyr Ser Asn Ser Ala Leu Gly His Val Asn Cys Thr Ile Lys Glu
          100   105   110

Leu Arg Arg Leu Phe Leu Val Asp Asp Leu Val Asp Ser Leu Lys Phe
          115   120   125

Ala Val Leu Met Trp Val Phe Thr Tyr Val Gly Ala Leu Phe Asn Gly
      130   135   140

Leu Thr Leu Leu Ile Leu Ala Leu Ile Ser Leu Phe Ser Val Pro Val
145   150   155   160

51

Ile Tyr Glu Arg His Gln Ala Gln Ile Asp His Tyr Leu Gly Leu Ala
                165   170   175

Asn Lys Asn Val Lys Asp Ala Met Ala Lys Ile Gln Ala Lys Ile Pro
                180   185   190

Gly Leu Lys Arg Lys Ala Glu
            195

<210> 26
<211> 473
<212> PRT
<213> Homo sapiens

<400> 26

Met Lys Arg Ala Ser Ala Gly Gly Ser Arg Leu Leu Ala Trp Val Leu
1   5   10   15

Trp Leu Gln Ala Trp Gln Val Ala Ala Pro Cys Pro Gly Ala Cys Val
            20   25   30

Cys Tyr Asn Glu Pro Lys Val Thr Thr Ser Cys Pro Gln Gln Gly Leu
            35   40   45

Gln Ala Val Pro Val Gly Ile Pro Ala Ala Ser Gln Arg Ile Phe Leu
        50   55   60

His Gly Asn Arg Ile Ser His Val Pro Ala Ala Ser Phe Arg Ala Cys
65   70   75   80

Arg Asn Leu Thr Ile Leu Trp Leu His Ser Asn Val Leu Ala Arg Ile
                85   90   95

Asp Ala Ala Ala Phe Thr Gly Leu Ala Leu Leu Glu Gln Leu Asp Leu
            100   105   110

Ser Asp Asn Ala Gln Leu Arg Ser Val Asp Pro Ala Thr Phe His Gly
            115   120   125

Leu Gly Arg Leu His Thr Leu His Leu Asp Arg Cys Gly Leu Gln Glu
        130   135   140

Leu Gly Pro Gly Leu Phe Arg Gly Leu Ala Ala Leu Gln Tyr Leu Tyr
145   150   155   160

```
Leu Gln Asp Asn Ala Leu Gln Ala Leu Pro Asp Asp Thr Phe Arg Asp
            165                     170                 175

Leu Gly Asn Leu Thr His Leu Phe Leu His Gly Asn Arg Ile Ser Ser
            180                     185                 190

Val Pro Glu Arg Ala Phe Arg Gly Leu His Ser Leu Asp Arg Leu Leu
            195                     200                 205

Leu His Gln Asn Arg Val Ala His Val His Pro His Ala Phe Arg Asp
    210                     215                 220

Leu Gly Arg Leu Met Thr Leu Tyr Leu Phe Ala Asn Asn Leu Ser Ala
225                     230                 235                 240

Leu Pro Thr Glu Ala Leu Ala Pro Leu Arg Ala Leu Gln Tyr Leu Arg
            245                     250                 255

Leu Asn Asp Asn Pro Trp Val Cys Asp Cys Arg Ala Arg Pro Leu Trp
            260                     265                 270

Ala Trp Leu Gln Lys Phe Arg Gly Ser Ser Ser Glu Val Pro Cys Ser
            275                     280                 285

Leu Pro Gln Arg Leu Ala Gly Arg Asp Leu Lys Arg Leu Ala Ala Asn
    290                     295                 300

Asp Leu Gln Gly Cys Ala Val Ala Thr Gly Pro Tyr His Pro Ile Trp
305                     310                 315                 320

Thr Gly Arg Ala Thr Asp Glu Glu Pro Leu Gly Leu Pro Lys Cys Cys
            325                     330                 335

Gln Pro Asp Ala Ala Asp Lys Ala Ser Val Leu Glu Pro Gly Arg Pro
            340                     345                 350

Ala Ser Ala Gly Asn Ala Leu Lys Gly Arg Val Pro Pro Gly Asp Ser
            355                     360                 365

Pro Pro Gly Asn Gly Ser Gly Pro Arg His Ile Asn Asp Ser Pro Phe
    370                     375                 380
```

53

```
Gly Thr Leu Pro Gly Ser Ala Glu Pro Pro Leu Thr Ala Val Arg Pro
385             390             395             400


Glu Gly Ser Glu Pro Pro Gly Phe Pro Thr Ser Gly Pro Arg Arg Arg
            405             410             415


Pro Gly Cys Ser Arg Lys Asn Arg Thr Arg Ser His Cys Arg Leu Gly
            420             425             430


Gln Ala Gly Ser Gly Gly Gly Gly Thr Gly Asp Ser Glu Gly Ser Gly
            435             440             445


Ala Leu Pro Ser Leu Thr Cys Ser Leu Thr Pro Leu Gly Leu Ala Leu
            450             455             460


Val Leu Trp Thr Val Leu Gly Pro Cys
465             470


<210>  27
<211>  473
<212>  PRT
<213>  Mus musculus

<400>  27

Met Lys Arg Ala Ser Ser Gly Gly Ser Arg Leu Leu Ala Trp Val Leu
1               5               10              15


Trp Leu Gln Ala Trp Arg Val Ala Thr Pro Cys Pro Gly Ala Cys Val
            20              25              30


Cys Tyr Asn Glu Pro Lys Val Thr Thr Ser Cys Pro Gln Gln Gly Leu
            35              40              45


Gln Ala Val Pro Thr Gly Ile Pro Ala Ser Ser Gln Arg Ile Phe Leu
    50              55              60


His Gly Asn Arg Ile Ser His Val Pro Ala Ala Ser Phe Gln Ser Cys
65              70              75              80


Arg Asn Leu Thr Ile Leu Trp Leu His Ser Asn Ala Leu Ala Arg Ile
            85              90              95


Asp Ala Ala Ala Phe Thr Gly Leu Thr Leu Leu Glu Gln Leu Asp Leu
            100             105             110
```

54

Ser Asp Asn Ala Gln Leu His Val Val Asp Pro Thr Thr Phe His Gly
        115   120   125

Leu Gly His Leu His Thr Leu His Leu Asp Arg Cys Gly Leu Arg Glu
    130   135   140

Leu Gly Pro Gly Leu Phe Arg Gly Leu Ala Ala Leu Gln Tyr Leu Tyr
145   150   155   160

Leu Gln Asp Asn Asn Leu Gln Ala Leu Pro Asp Asn Thr Phe Arg Asp
                165   170   175

Leu Gly Asn Leu Thr His Leu Phe Leu His Gly Asn Arg Ile Pro Ser
            180   185   190

Val Pro Glu His Ala Phe Arg Gly Leu His Ser Leu Asp Arg Leu Leu
        195   200   205

Leu His Gln Asn His Val Ala Arg Val His Pro His Ala Phe Arg Asp
    210   215   220

Leu Gly Arg Leu Met Thr Leu Tyr Leu Phe Ala Asn Asn Leu Ser Met
225   230   235   240

Leu Pro Ala Glu Val Leu Met Pro Leu Arg Ser Leu Gln Tyr Leu Arg
                245   250   255

Leu Asn Asp Asn Pro Trp Val Cys Asp Cys Arg Ala Arg Pro Leu Trp
                260   265   270

Ala Trp Leu Gln Lys Phe Arg Gly Ser Ser Ser Glu Val Pro Cys Asn
            275   280   285

Leu Pro Gln Arg Leu Ala Asp Arg Asp Leu Lys Arg Leu Ala Ala Ser
    290   295   300

Asp Leu Glu Gly Cys Ala Val Ala Ser Gly Pro Phe Arg Pro Ile Gln
305   310   315   320

Thr Ser Gln Leu Thr Asp Glu Glu Leu Leu Ser Leu Pro Lys Cys Cys
                325   330   335

Gln Pro Asp Ala Ala Asp Lys Ala Ser Val Leu Glu Pro Gly Arg Pro

55

```
Ala Ser Ala Gly Asn Ala Leu Lys Gly Arg Val Pro Pro Gly Asp Thr
    355             360             365

Pro Pro Gly Asn Gly Ser Gly Pro Arg His Ile Asn Asp Ser Pro Phe
    370             375             380

Gly Thr Leu Pro Ser Ser Ala Glu Pro Pro Leu Thr Ala Leu Arg Pro
385             390             395             400

Gly Gly Ser Glu Pro Pro Gly Leu Pro Thr Thr Gly Pro Arg Arg Arg
                405             410             415

Pro Gly Cys Ser Arg Lys Asn Arg Thr Arg Ser His Cys Arg Leu Gly
            420             425             430

Gln Ala Gly Ser Gly Ala Ser Gly Thr Gly Asp Ala Glu Gly Ser Gly
        435             440             445

Ala Leu Pro Ala Leu Ala Cys Ser Leu Ala Pro Leu Gly Leu Ala Leu
    450             455             460

Val Leu Trp Thr Val Leu Gly Pro Cys
465             470
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<210>  28
<211>  15
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  synthetic

<400>  28

Ser Gly Val Pro Ser Asn Leu Pro Gln Arg Leu Ala Gly Arg Asp
1               5               10              15


<210>  29
<211>  15
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  synthetic

<400>  29
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Thr Arg Ser His Cys Arg Leu Gly Gln Ala Gly Ser Gly Ser Ser
1               5                   10                  15
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